

**Plastid. Dünaamiliste mehaaniliste omaduste  
määramine. Osa 2: Väändependlimeetod**

Plastics - Determination of dynamic mechanical  
properties. Part 2: Torsion-pendulum method

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 6721-2:2008 sisaldab Euroopa standardi EN ISO 6721-2:2008 ingliskeelset teksti.

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English Version

Plastics - Determination of dynamic mechanical properties - Part  
2: Torsion-pendulum method (ISO 6721-2:2008)

Plastiques - Détermination des propriétés mécaniques  
dynamiques - Partie 2: Méthode au pendule de torsion (ISO  
6721-2:2008)

Kunststoffe - Bestimmung dynamisch mechanischer  
Eigenschaften - Teil 2: Torsionspendel-Verfahren (ISO  
6721-2:2008)

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## Foreword

This document (EN ISO 6721-2:2008) has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with Technical Committee CEN/TC 249 "Plastics" the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2008, and conflicting national standards shall be withdrawn at the latest by December 2008.

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### Endorsement notice

The text of ISO 6721-2:2008 has been approved by CEN as a EN ISO 6721-2:2008 without any modification.

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# Plastics — Determination of dynamic mechanical properties —

## Part 2: Torsion-pendulum method

### 1 Scope

This part of ISO 6721 specifies two methods (A and B) for determining the linear dynamic mechanical properties of plastics, i.e. the storage and loss components of the torsional modulus, as a function of temperature, for small deformations within the frequency range from 0,1 Hz to 10 Hz.

The temperature dependence of these properties, measured over a sufficiently broad range of temperatures (for example from  $-50\text{ °C}$  to  $+150\text{ °C}$  for the majority of commercially available plastics), gives information on the transition regions (for example the glass transition and the melting transition) of the polymer. It also provides information concerning the onset of plastic flow. The two methods described are not applicable to non-symmetrical laminates (see ISO 6721-3, *Plastics — Determination of dynamic mechanical properties — Part 3: Flexural vibration — Resonance-curve method*). The methods are not suitable for testing rubbers, for which the user is referred to ISO 4664-2, *Rubber, vulcanized or thermoplastic — Determination of dynamic properties — Part 2: Torsion pendulum methods at low frequencies*.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6721-1:2001, *Plastics — Determination of dynamic mechanical properties — Part 1: General principles*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6721-1:2001, Clause 3, apply.

### 4 Principle

A test specimen of uniform cross-section is gripped by two clamps, one of them fixed and the other connected to a disc, which acts as an inertial member, by a rod. The end of the specimen connected to the disc is excited, together with the disc, to execute freely decaying torsional oscillations. The oscillation mode is that designated IV in ISO 6721-1:2001, Table 2, and the type of modulus is  $G_{t0}$  as defined in ISO 6721-1:2001, Table 3.

The inertial member is suspended either from the specimen (method A, see Figure 1) or from a wire (method B, see Figure 2). In the latter case, the wire is also part of the elastically oscillating system.